

Initial Study Report Meeting

Study 11.6 Riparian Vegetation Study Downstream of the Proposed Susitna- Watana Dam

October 17, 2014

Prepared by

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Research & Services



Study 11.6 Objectives

- Classify, delineate, and map riparian ecotypes, wetlands, and wildlife habitats downstream from the Watana Dam site;
- Characterize the role of erosion and sediment deposition in the formation of floodplain surfaces, soils, and vegetation;
- Quantify and describe Susitna River riparian vegetation communities; and
- Coordinate closely in the implementation of the Riparian IFS (Study 8.6), Groundwater Study (Study 7.5), Ice Processes in the Susitna River Study (Study 7.6), and Fluvial Geomorphology Modeling below Watana Dam Study (Study 6.6)

Study 11.6 Components

- Develop mapping materials from historical and current data (ISR Part A, Section 4.1; 4); data sources include:
 - Vegetation mapping and succession studies conducted in the 1980s
 - National Wetland Inventory (NWI) mapping
 - Hydrographic and digital elevation data
 - Recent high- and moderate-resolution aerial imagery
- Field Surveys (ISR Part A, Section 4.2; 5)
- Integrated Terrain Unit (ITU) classification and mapping of downstream riparian areas (ISR Part A, Section 4.3; 12)— ITU components include geomorphology, surface form, vegetation class, poplar size class, and disturbance class

Study 11.6 Variances

- In the RSP (Section 11.6), the proposed plot-allocation procedure to determine the number of ELS plots in Focus Areas (FAs) was based on FA size alone.
 - In response to agency comments, this was revised to account for both FA size and the number of riparian ecotypes in each FA, such that a smaller-sized FA with a higher number of ecotypes would be assigned a larger number plots than it would based on size alone.
 - Overall a higher number of ELS plots were allocated within each FA than under the original procedure.
 - A technical memorandum describing this revised plot-allocation procedure was filed with FERC on July 1, 2013.

Study 11.6 Variances

- On ELS plots, the spacing interval for the point-intercept vegetation sampling locations along transect lines was increased from 0.5 m to 1 m.
 - This change facilitated the collection of more representative and accurate plant cover data (i.e., less overlap in recording the same plants in the dense, multi-canopied vegetation in the Susitna River floodplain).
 - The larger sampling interval required a larger sampling radius (23 m) for the ELS plots.

Study 11.6 Variances

- For ELS plots along groundwater transects, the groundwater installation equipment was placed just outside the 23-m radius of each ELS plot (as opposed to the plot center noted in the FERC-approved study plan).
 - This was done to reduce the risk of vegetation disturbance within the plot because the groundwater installation equipment was large relative to the 3-m-radius ELS plot center.
 - Avoiding vegetation disturbance in intensive plots is important because these are designed as long-term monitoring plots.

Study 11.6 Variances

No additional variances or modifications to the study have been made in 2014.

Study 11.6 Summary of Results in ISR (ISR Study 11.6, Part A – Section 5)

- 2012 field surveys completed during one sampling period (June 24-July 3):
 - June 24–July 3: 87 ITU plots along 28 transects were sampled
 - the ITU transects span a number of floodplain features and the sample plots were placed in distinct vegetation types
 - vegetation and soils data were collected at the ITU plots
 - ITU plots designed primarily to support the mapping of riparian vegetation

Study 11.6 Summary of Results in ISR (ISR Study 11.6, Part A – Section 5)

2013 field surveys completed as planned in four survey periods (April 30–May 3, May 19–22, June 17–July 10, July 24 –August 12):

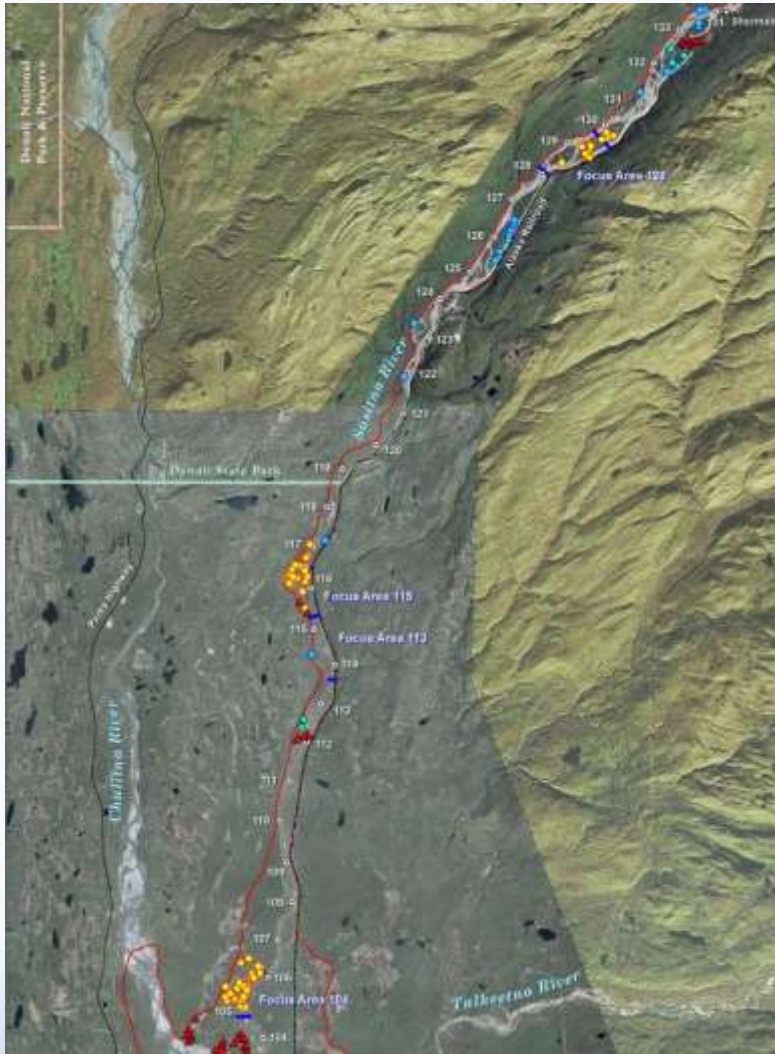
- April–May: AVC Level III and surficial geomorphology verification
- May: soil trenching and soil core sampling trials
- June–August: sampling of 214 ITU plots along 35 transects
 - the ITU transects span a number of floodplain features and the sample plots were placed in distinct vegetation types
 - vegetation and soils data were collected at the ITU plots, primarily to support the mapping of riparian vegetation

Study 11.6 Summary of Results in ISR (ISR Study 11.6, Part A – Section 5)

- June–August 2013: 62 intensive, permanent ELS plots were established and sampled
 - vegetation composition and soils data
 - dendrochronology and forest structure data were collected
 - ELS plots are designed to serve as long-term monitoring plots

Study 11.6 Summary of Results in ISR (ISR Study 11.6, Part A – Section 5)

- ELS and ITU Plots (2013) and Planned ELS Plots (2015), Middle River



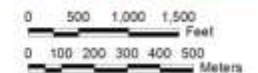
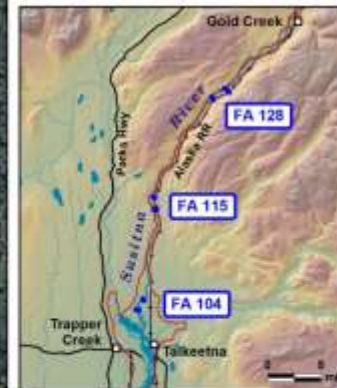
Study 11.6 Summary of Results in ISR (ISR Study 11.6, Part A – Section 5)



Legend

- 2013 ELS Plot
- 2013 ELS Plot, Sediment Core
- 2013 Sediment Core
- + 2013 ELS Plot, Soil Trench
- ▲ 2013 ITU Mapping Plot
- Planned 2014 ELS Plot
- Instream Flow Focus Area (Upper and Lower Extent)
- 2013 Riparian Study Area
- Project River Mile
- Project River 0.1 Mile

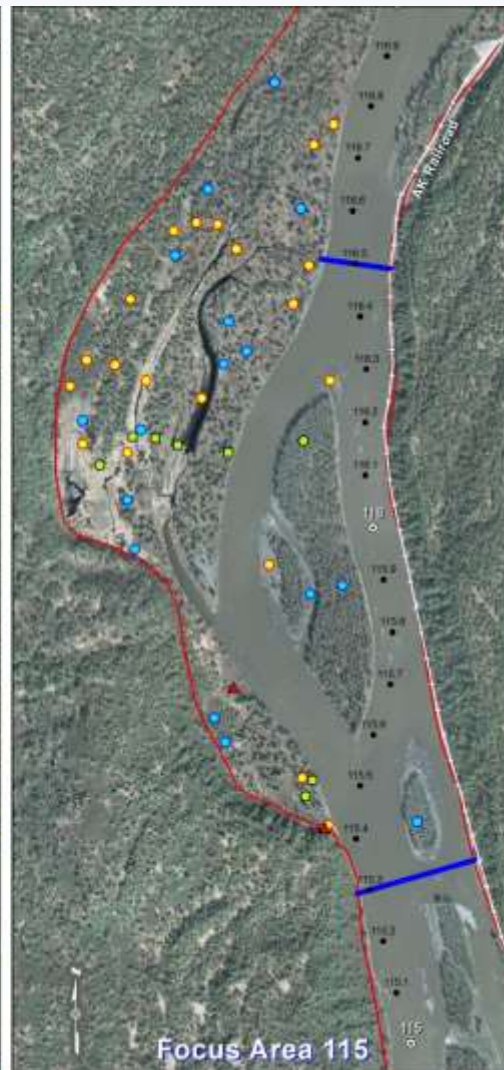
Data Sources: See Map References
AEA Project Land Status from
SuWaOwnership – 20130910 HDR



Projection: AK State Plane Zone 4 NAD 1983
Date Saved: 10/10/2013
Map Author: ASR, Inc. - Allison Zani Cobb
File: SuWa_ABR_RIPR_FA_Plots_ISR_2013_v01.mxd



Focus Area 104



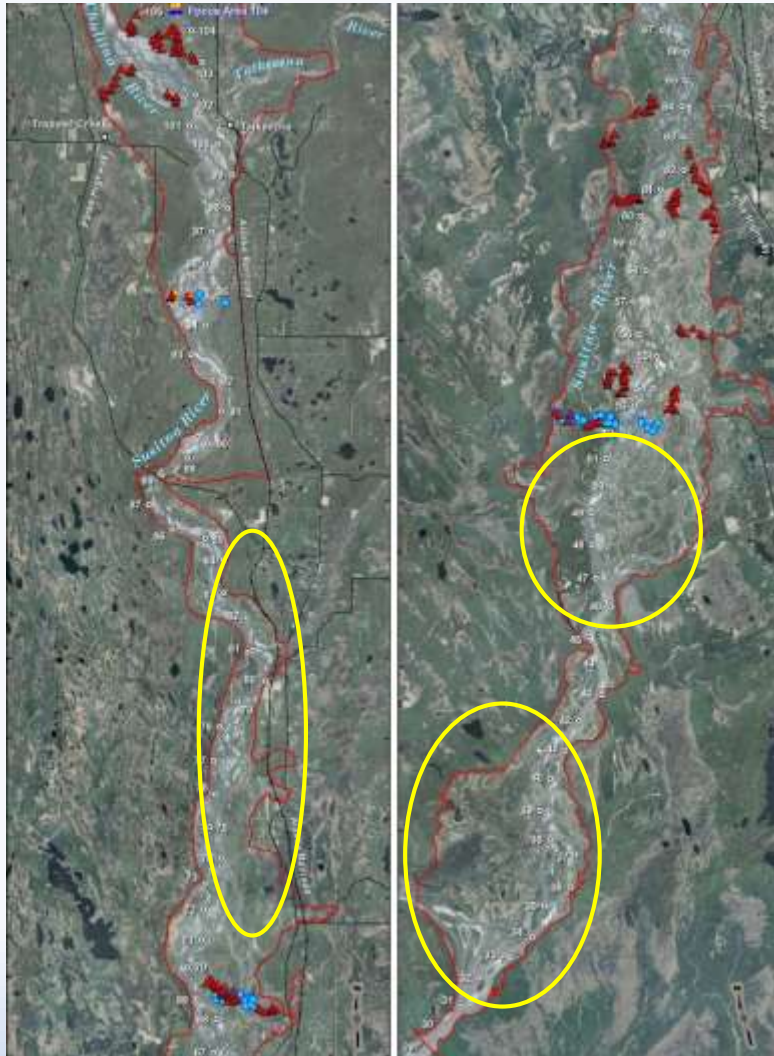
Focus Area 115



Focus Area 128

Study 11.6 Summary of Results in ISR (ISR Study 11.6, Part A – Section 5)

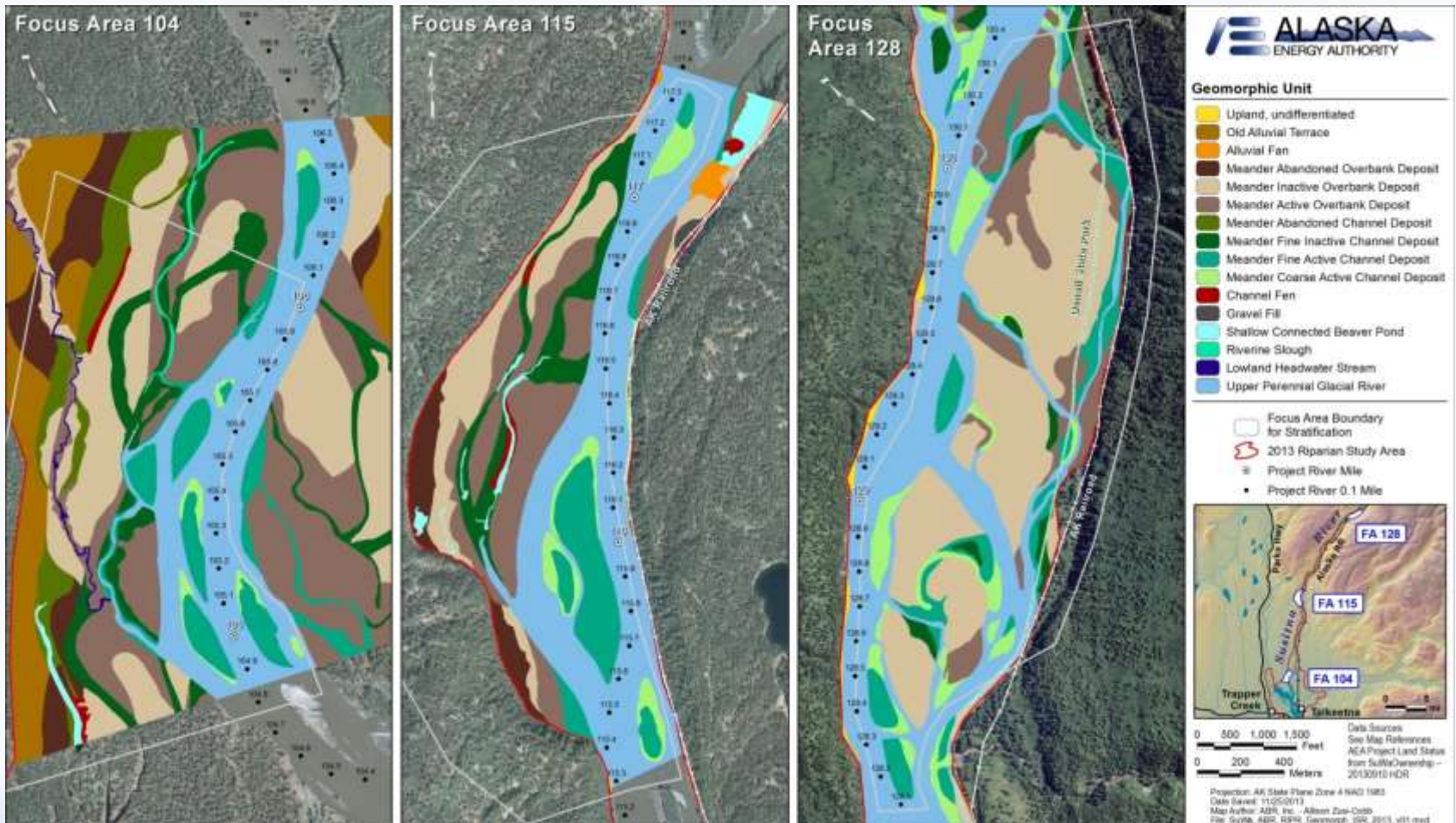
- ELS and ITU Plots (2013) and Planned ELS Plots (2015), Lower River



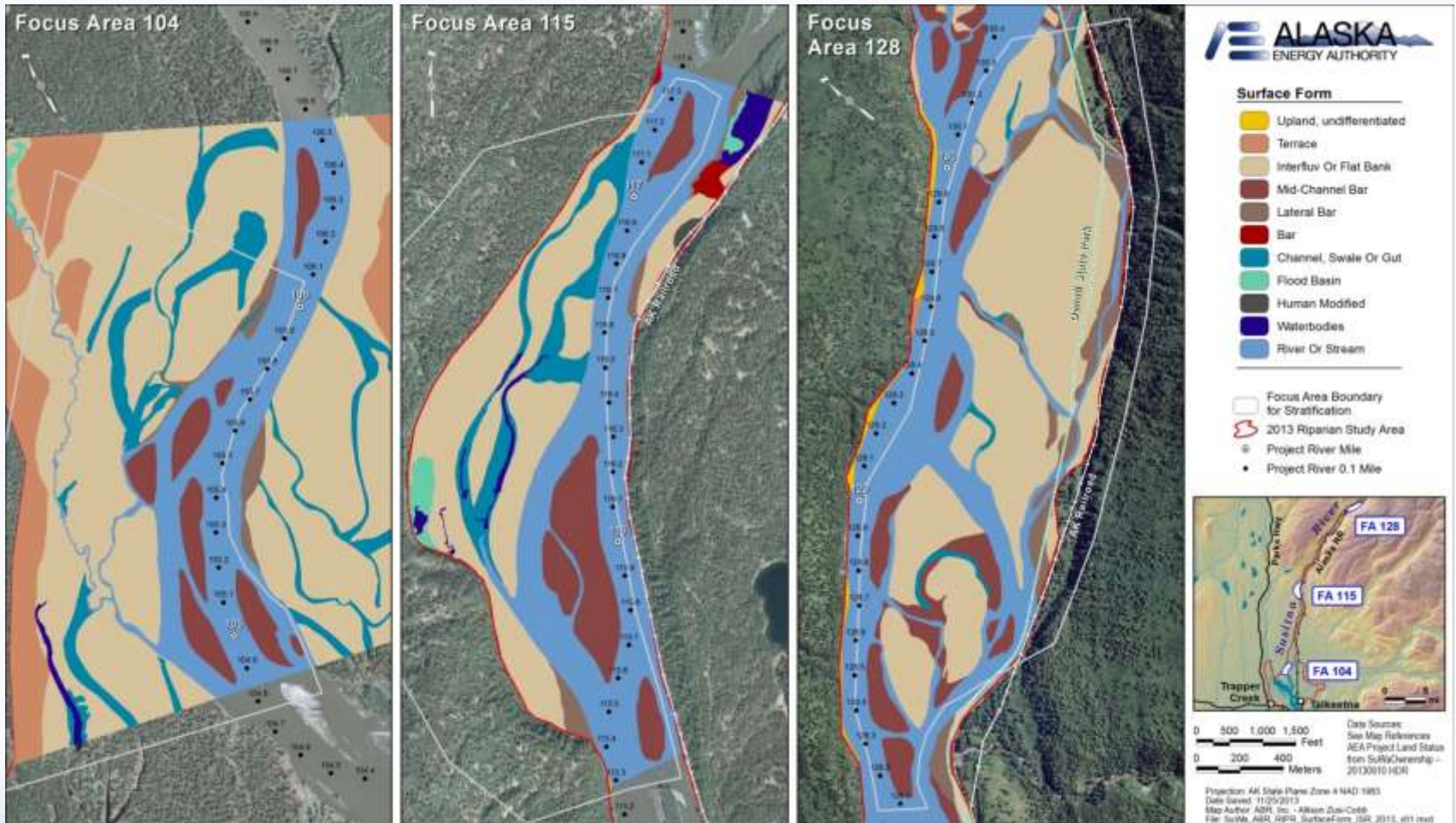
Study 11.6 Summary of Results since ISR (ISR Study 11.6, Part A – Section 5)

- 62,661 acres in the study area have been mapped to date, which accounts for 50% of the total study area
- Total mapping area up from approximately 9,000 acres at time the ISR was submitted
- Preliminary analysis of 2013 field data
- Focused mapping efforts occurring now through spring
- ITU attributes recorded for each map polygon include:
 - AVC Level IV vegetation class
 - Seral vegetation class (e.g., poplar size class)
 - Riverine geomorphology class, indirectly gets at flood frequency

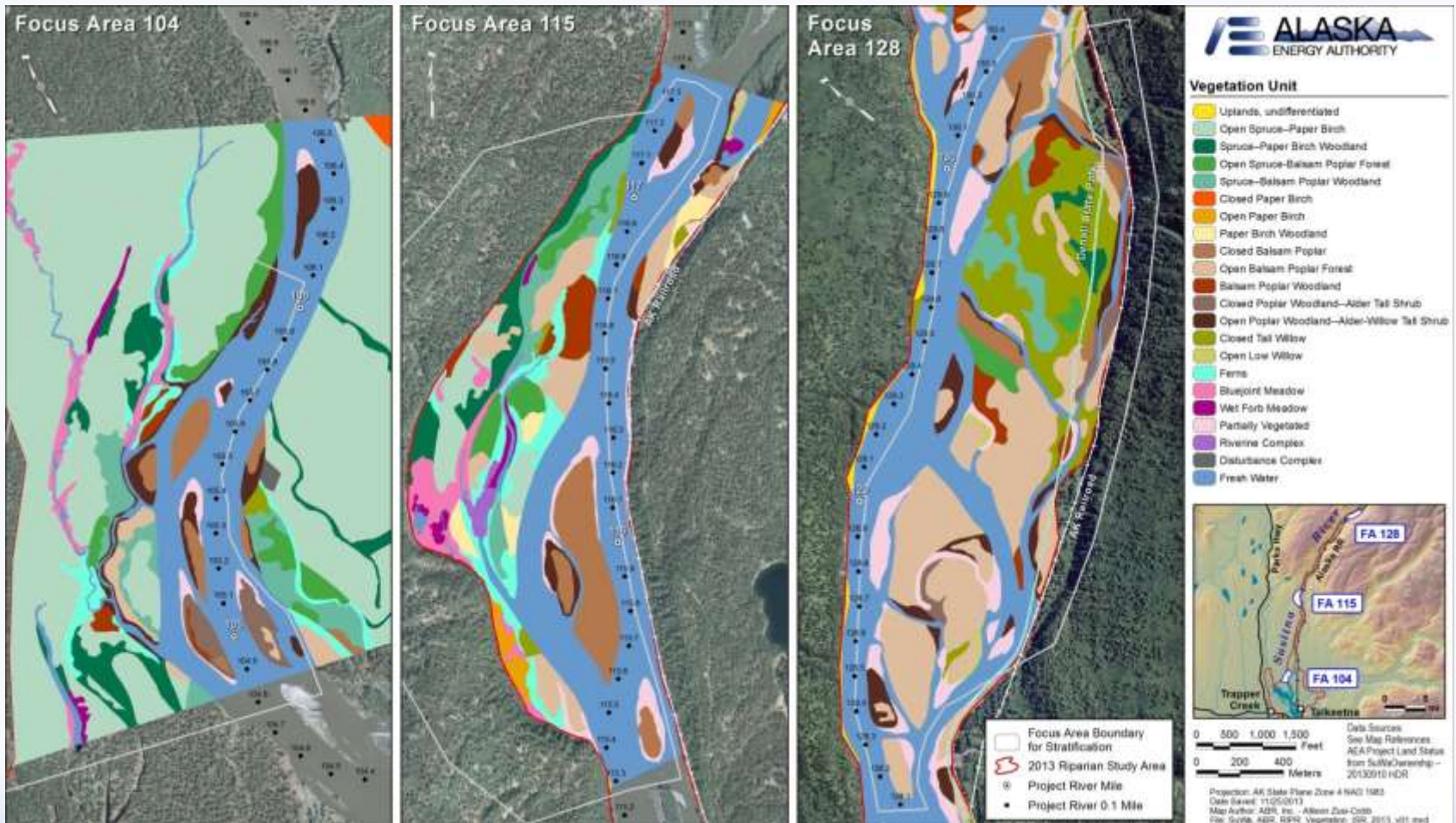
Study 11.6 Summary of Results since ISR (ISR Study 11.6, Part A – Section 5): Geomorphology in Focus Areas



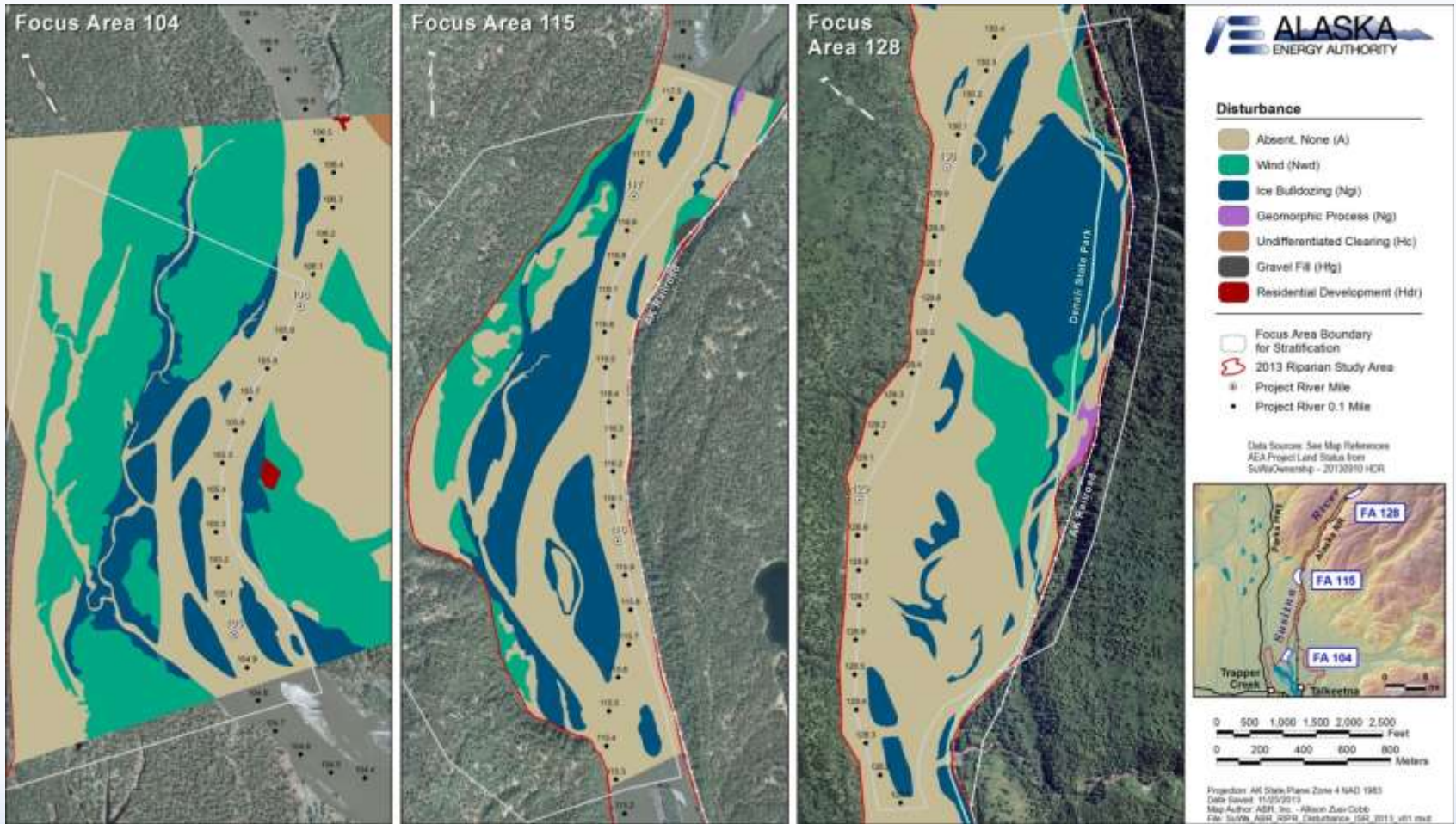
Study 11.6 Summary of Results since ISR (ISR Study 11.6, Part A – Section 5): Surface Form in Focus Areas



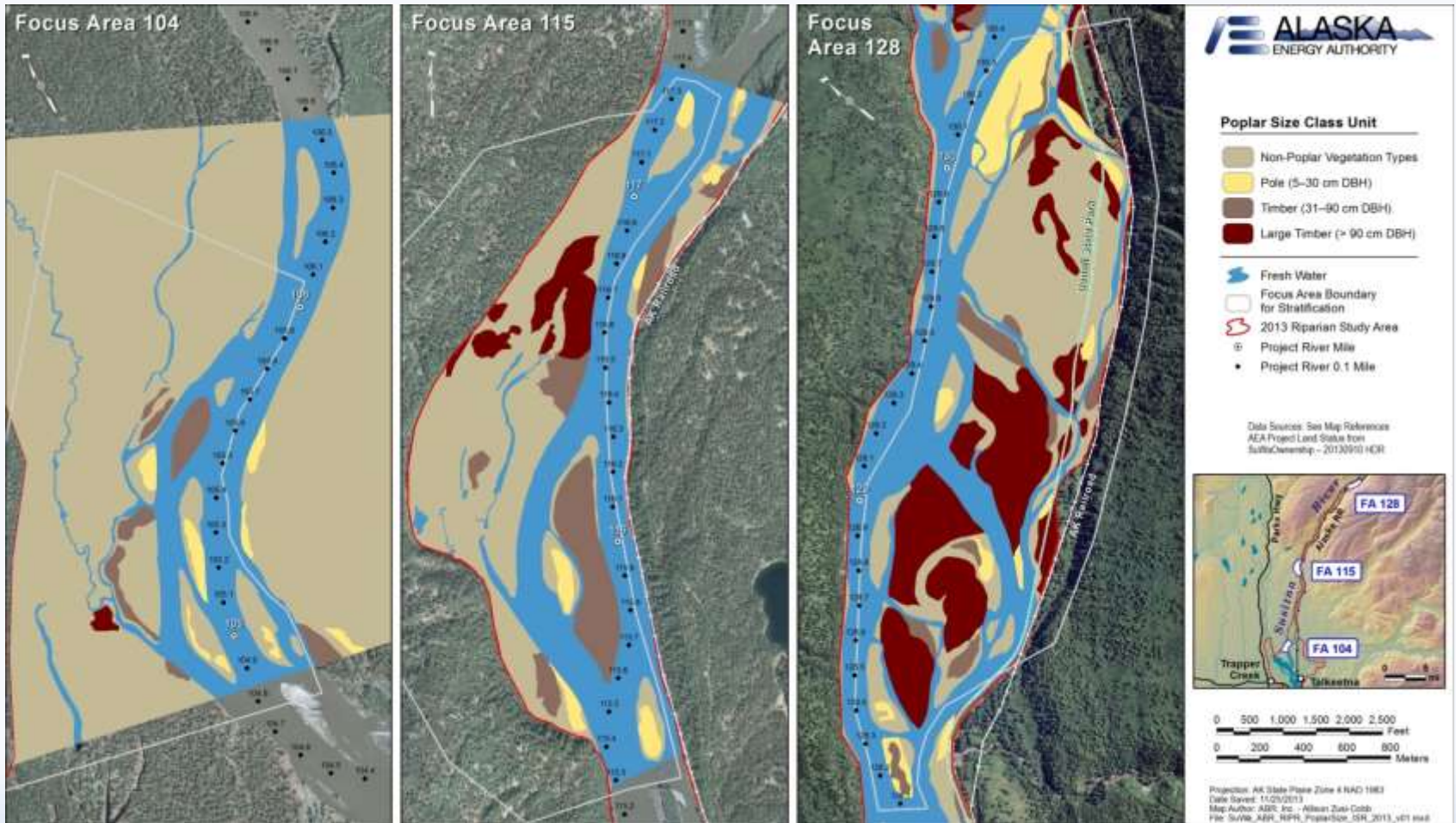
Study 11.6 Summary of Results since ISR (ISR Study 11.6, Part A – Section 5): Vegetation in Focus Areas



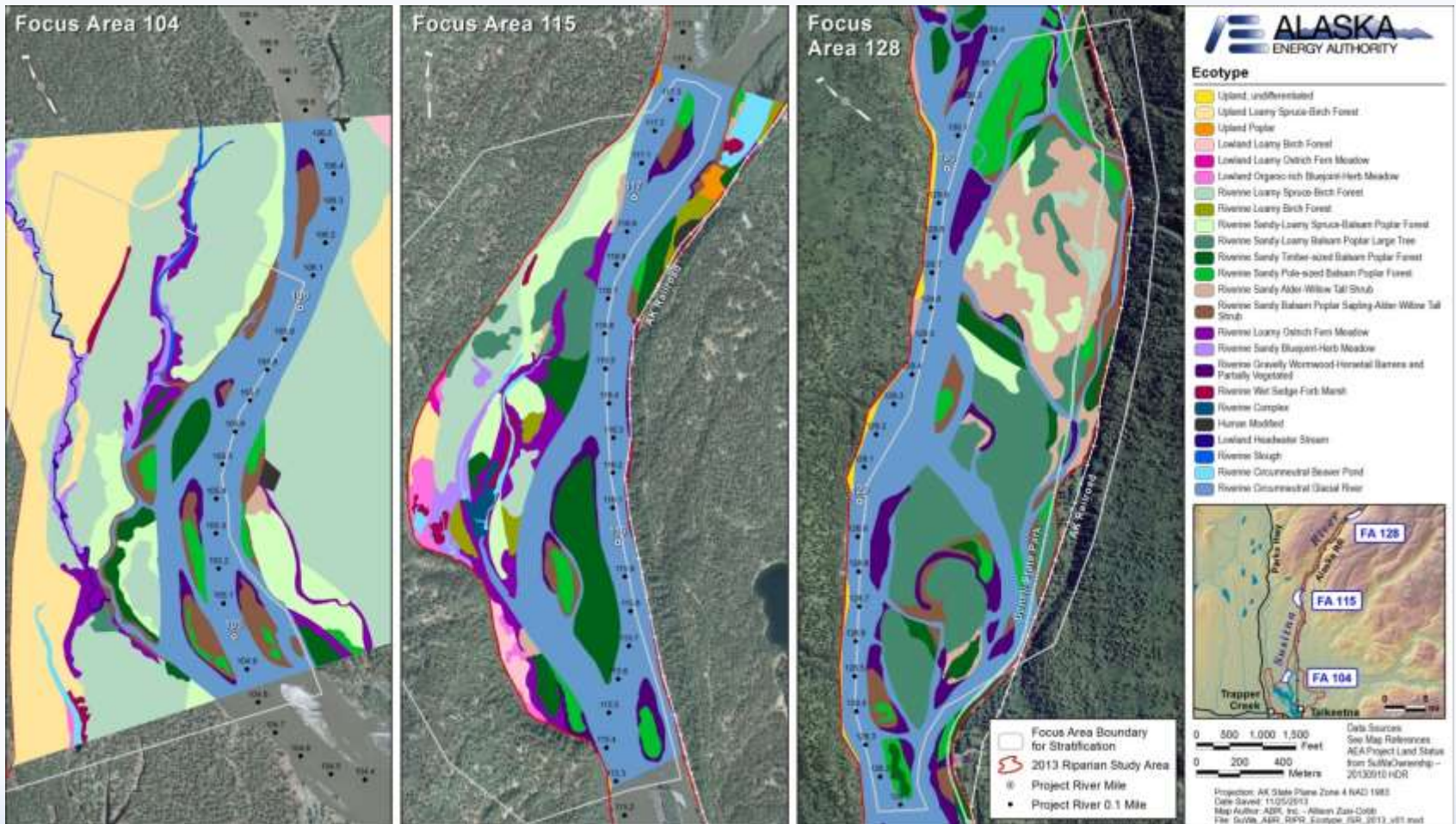
Study 11.6 Summary of Results since ISR (ISR Study 11.6, Part A – Section 5): Disturbance in Focus Areas



Study 11.6 Summary of Results since ISR (ISR Study 11.6, Part A – Section 5): Poplar Size Class in Focus Areas



Study 11.6 Summary of Results since ISR (ISR Study 11.6, Part A – Section 5): Ecotype Mapping in Focus Areas



AEA Proposed Modifications to Study 11.6 in ISR (ISR Study 11.6, Part C – Section 7.1.2)

No significant modifications to Study 11.6

Current Status and Steps to Complete Study 11.6 (ISR Study 11.6, Part C – Section 7.1)

- Sediment sampling and aging analyses in September 2014;
- Field sampling of ELS and ITU mapping plots in summer 2015, focusing farther upstream in the Middle River and farther downstream in the Lower River;
- Finalize ITU mapping based on 2015 field data;
- Derive final riparian ecotypes from the field and ITU mapping data;
- Develop riparian wildlife habitat and wetland types in coordination with Project wildlife researchers and the vegetation and wildlife habitat mapping study team; and
- Develop natural riparian vegetation-succession pathway models based on the 2012, 2013, and 2015 field data.

Steps to Complete Study 11.6 (ISR Study 11.6, Part C – Section 7.1)

- As described in the ISR, no additional study modifications are anticipated to be needed to meet the study objectives.
- Currently, with the implementation of the variances described in the ISR, the study objectives are being met.
- The study objectives will be fully met when the final field surveys, ITU mapping, and modeling of riparian successional pathways are completed in 2015.

Licensing Participants Proposed Modifications to Study 11.6?

- Agencies
- CIRWG members and Ahtna
- Public